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## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

**Listing of Claims:**

1.     (Currently amended) A <u>computer-implemented</u> method for generating an execution order for a function block diagram having a plurality of function blocks, the function blocks each have one or more inputs, the method comprising:

determining input data availability for the inputs of the plurality of function blocks; ~~and~~

generating an execution order for the function block diagram according to the input data availability for the inputs of the plurality of function blocks in the function block diagram<u>;</u>

<u>determining whether an unspecified feedback loop exists in the function block diagram;</u> and

<u>generating an error if an unspecified feedback loop exists in the function block diagram.</u>

2.     (Previously presented) The method of claim 1, determining input data availability for the inputs of the plurality of function blocks comprises:

determining that a feedback loop exists in the function block diagram; and

assuming data availability for function blocks in the feedback loop.

3.     (Previously presented) The method of claim 2, determining that a feedback loop exists in the function block diagram comprises determining whether a localized feedback wire is associated with a function block input in the feedback loop, and wherein assuming data availability for function blocks in the feedback loop comprises assuming data availability for the function block input associated with the localized feedback wire.

4.     (Canceled)

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5.      (Currently amended) The method of claim [[4]] 1, determining whether an unspecified feedback loop exists comprises determining that an unspecified feedback loop exists if no localized feedback wire exists in the feedback loop.

6.      (Previously presented) The method of claim 5, determining input data availability comprises determining whether an extra localized feedback wire exists in the function block diagram, and generating an error if an extra localized feedback wire exists in the function block diagram.

7.      (Previously presented) The method of claim 1, generating an execution order for the function block diagram comprises assigning an execution number to each of the plurality of function blocks in the function block diagram.

8.      (Previously presented) The method of claim 7, the function block diagram comprises an association between an input of a first function block and a second function block, and determining data availability for the plurality of function blocks comprises determining that data is available for the input of the first function block if an execution order number has been assigned to the second function block.

9.      (Previously presented) The method of claim 1, determining input data availability for the inputs of the plurality of function blocks comprises assuming data availability for a first input of a first function block if the first input is associated with an input reference.

10.      (Previously presented) The method of claim 9, generating an execution order for the function block diagram comprises assigning an execution number to each of the plurality of function blocks in the function block diagram.

11.     (Previously presented) The method of claim 10, the function block diagram comprises an association between the first input of the first function block and a second function block, and wherein determining data availability for the plurality of function blocks comprises determining that data is available for the first input of the first function block if an execution order number has been assigned to the second function block.

12.     (Previously presented) The method of claim 10, assigning an execution number to each of the plurality of function blocks comprises assigning a next available execution order number to the first function block if data is available for all inputs of the first function block.

13.     (Currently amended) In a controller configuration system, a computer-implemented method for generating a control routine from a function block diagram having a plurality of function blocks, the function blocks each have one or more inputs, the method comprising:

        determining input data availability for the inputs of the plurality of function blocks;

        generating an execution order for the function block diagram according to the input data availability for the inputs of the plurality of function blocks in the function block diagram;

        determining that an unspecified feedback loop exists in the function block diagram if no localized feedback wire exists in the feedback loop;

        generating an error if an unspecified feedback loop exists in the function block diagram; and

        generating a control routine from the function block diagram according to the execution order.

14.     (Previously presented) The method of claim 13, determining input data availability for the inputs of the plurality of function blocks comprises:

        determining that a feedback loop exists in the function block diagram; and

        assuming data availability for function blocks in the feedback loop.

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15.      (Previously presented) The method of claim 14, determining that a feedback loop exists in the function block diagram comprises determining whether a localized feedback wire is associated with a function block input in the feedback loop, and wherein assuming data availability for function blocks in the feedback loop comprises assuming data availability for the function block input associated with the localized feedback wire.

16.      (Canceled)

17.      (Canceled)

18.      (Currently amended) The method of claim [[17]] 13, determining input data availability comprises determining whether an extra localized feedback wire exists in the function block diagram, and generating an error if an extra localized feedback wire exists in the function block diagram.

19.      (Previously presented) The method of claim 13, generating an execution order for the function block diagram comprises assigning an execution number to each of the plurality of function blocks in the function block diagram.

20.      (Previously presented) The method of claim 19, the function block diagram comprises an association between an input of a first function block and a second function block, and wherein determining data availability for the plurality of function blocks comprises determining that data is available for the input of the first function block if an execution order number has been assigned to the second function block.

21.      (Previously presented) The method of claim 13, determining input data availability for the inputs of the plurality of function blocks comprises assuming data availability for a first input of a first function block if the first input is associated with an input reference.

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22.     (Previously presented) The method of claim 21, generating an execution order for the function block diagram comprises assigning an execution number to each of the plurality of function blocks in the function block diagram.

23.     (Previously presented) The method of claim 22, the function block diagram comprises an association between the first input of the first function block and a second function block, and wherein determining data availability for the plurality of function blocks comprises determining that data is available for the first input of the first function block if an execution order number has been assigned to the second function block.

24.     (Previously presented) The method of claim 22, assigning an execution number to each of the plurality of function blocks comprises assigning a next available execution order number to the first function block if data is available for all inputs of the first function block.

25.     (Currently amended) A computer-implemented controller configuration system for generating a control routine from a function block diagram having a plurality of function blocks, the function blocks each have one or more inputs, the system comprising:

an execution order generator component that determines input data availability for the inputs of the plurality of function blocks, and generates an execution order for the function block diagram according to the input data availability for the inputs of the plurality of function blocks, the input data availability is determined based at least in part on whether an extra localized feedback wire exists in the function block diagram, and generates an error if an extra localized feedback wire exists in the function block diagram; and

a compiler component that generates a control routine from the function block diagram according to the execution order.

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26.    (Currently amended) ~~An~~ A computer-implemented execution order generator for generating an execution order for a function block diagram having a plurality of function blocks, the function blocks each have one or more inputs, the execution order generator comprising:

means for determining input data availability for the inputs of the plurality of function blocks; ~~and~~

means for generating an execution order for the function block diagram according to the input data availability for the inputs of the plurality of function blocks in the function block diagram;

means for determining whether an unspecified feedback loop exists in the function block diagram; and

means for generating an error if an unspecified feedback loop exists in the function block diagram.

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